

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the amendment and following discussion is respectfully requested.

Claims 1-7 and 9-22 are presently pending in this application, Claim 8 was canceled without prejudice or disclaimer. Claims 1, 3, and 5 have been presently amended.

In the outstanding Office Action, Claims 1-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 2001-334114 (hereinafter “(“Motoshige”)”) in view of Ichikawa et al. (U.S. Patent 7,056,568).

Claim Summary: The subject matter formerly in Claim 8 has been now included in Claims 1 and 3. In particular, Claim 1 now defines:

A honeycomb structural body comprising:
at least one pillar-shaped porous ceramic member comprising a silicon-ceramic composite material, the silicon-ceramic composite material comprising a silicon constituent and a ceramic constituent, the at least one pillar-shaped porous ceramic member having a plurality of through-holes extending in a longitudinal direction of the at least one pillar-shaped porous ceramic member and a plurality of partitions separating the through-holes,
wherein
the through-holes are plugged such that an opening area at one end face of the at least one pillar-shaped porous ceramic member is different from an opening area at the other end face of the at least one pillar-shaped porous ceramic member, and
a surface roughness of the partition in the porous ceramic member is 1.0-30.0 μm . [Emphasis Added.]

As Applicants explained in the specification at page 15, line 31, to page 16, line 10:

In the invention, the surface roughness of the partition is desirable to be within a range of 1.0-30.0 μm as calculated in terms of arithmetic mean roughness (Ra) defined in JIS B 0601-2001.

When the surface roughness (Ra) of the partition is less than 1.0, the mechanism is not clear, but the inflow of the exhaust gas hardly occurs and also the Young's modulus is low, so that the vibrations through the inflow of the exhaust gas hardly occurs, and the effect of peeling the ash becomes small. On the other hand, when the surface area (Ra) of the partition exceeds 30.0 μm , the inflow of exhaust gas easily occurs, but the vibration is not resonated

but cancelled, so that it is considered that the effect of peeling the ash becomes small. It is simply considered as a matter of course that ashes can easily be caught within the wall.

Art Deficiencies: The outstanding Office Action in rejecting Claim 8 stated that:

Consider claim 8, Motoshige discloses the claimed invention except for the surface roughness of the partition of the ceramic member. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the surface roughness for the desired application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Applicants traverse this position on obviousness for the following reasons.

Firstly, the statement provided by the examiner that “it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the surface roughness for the desired application” appears to be merely a conclusory statement. The Guidelines for the Patent and Trademark Office, published in Federal Register Vol. 72, No. 195, entitled: “Examination Guidelines for Determining Obviousness under 35 U.S.C. 103 in View of the Supreme Court Decision in KSR International v. Teleflex Inc,” indicate that:

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting In re Kahn 41 stated that “ ‘[R]ejections on obviousness ***cannot be sustained by mere conclusory statements***; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.’ ”

M.P.E.P. § 2141.03 as revised adopts the Federal Register Guidelines. Thus, some reason needs to be provided as to why one of ordinary skill in the art at the time of the invention would have been motivated to adjust the surface roughness. Without evidentiary support from the examiner it is impossible to know if the evidence would support the examiner’s position or teach away from the examiner’s position. For example, in some applications

increasing the surface roughness may be beneficial while in other applications increasing the surface roughness may be detrimental.

Secondly, Applicants submit that it would not be proper for the examiner to consider the claimed range to be a matter of routine optimization. M.P.E.P. § 2144.05 states that only result-effective variables can be optimized. In particular, M.P.E.P. § 2144.05 II B states

A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.

With neither reference indicating any significance for optimizing surface roughness, the Office has not established from the art that surface roughness is a result-effective variable, a case of *prima facie* obviousness has not been established against Claim 1. Only Applicants' specification as noted above provides a rationale for the claimed range of surface roughness.

Finally, the examiner's attention is invited to the attached Drawing which is a plotting of the data shown in Applicants' Table 3. This graph shows the effect of surface roughness on the accumulation of ash. There is a precipitous change in the accumulation of ash in the claimed range. This data shows the criticality of the claimed range. M.P.E.P. § 2144.05 III states:

Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. “

Hence, reconsideration of the examiner's position on obviousness will show that a case of *prima facie* obviousness can not be maintained.

For the foregoing reasons, Claims 1 and 3 are believed to be allowable. Furthermore, since Claims 2, 4-7, and 9-22 depend directly or indirectly from either Claim 1 or 3, these dependent claims are also believed to be allowable for substantially the same reasons set forth above.

In view of the discussions presented above, Applicants respectfully submit that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully submitted,

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Attachment: Drawing of Applicants' Table 3 Data

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